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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,585	12/18/2001	Suk Won Choi	8733.534.00	6155

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MCKENNA LONG & ALDRIDGE LLP  
1900 K STREET, NW  
WASHINGTON, DC 20006

EXAMINER
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LEWIS, DAVID LEE

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/27/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/017,585

Applicant(s)

CHOI ET AL.

Examiner

David L. Lewis

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- 1. Claims 1-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Mizutani et al. (6392620 B1).**

**As in claim 1, Mizutani et al. teaches of a ferroelectric liquid crystal display, figures 1 and 2, column 5 lines 41-67, column 6 lines 1-2, comprising:**

a liquid crystal panel including liquid crystal and at least one liquid crystal cell arranged at a crossing area at of a gate line and a data line, **column 5 lines 41-67, figure 2 items 8, 11, 1b;**

a data processor always supplying only one color data signal to said at least one liquid crystal cell during a scanning period, **figure 7 items 1<sup>st</sup> Gate Line 8, column 7 lines 13-19;** where the data signal is applied to capacitor 7 during the

gate scanning period, to only the red data signal, sequentially followed the the blue and green data signals.

and a backlight in a stand-by state throughout the duration of a responding period of the liquid crystal corresponding to each of said supplied red, green and blue data signals, for generating red, green and blue light at the end of each responding period, **column 3 lines 30-43, column 4 lines 39-42, column 7 lines 54-67**, wherein the responding period is the period between application of the data signal to the capacitor 7 and activation of the pulse to the whole writing line 9 controlling TFT 6, which turns on the pixel allowing the backlight to cause illumination. The whole writing takes place in synchronism with the backlight illumination as controlled by backlight driving unit 22. The backlight stand-by state is the light off state BL as well as the light off state between each color illumination as shown in figure 3.

wherein the backlight always generates the red, green, and blue light in correspondence with the red, green, and blue data signals, **column 3 lines 30-43, column 4 lines 39-42, column 7 lines 54-67, column 8 lines 1-10**.

As shown in figure 7 and columns 7 and 8, Mizutani teaches of a scanning period from a 1<sup>st</sup> gate line 8 up until the n-th or last gate line 8, during which only a single color, R, B, or G is supplied to the display cell. The period between the

application of this data signal for turning on a TFT 6 and the illumination of the red light is the response period. The irradiating period is the time when the backlight is activated in sync with the pixel turn on.

**As in claim 2, Mizutani et al. teaches of**, wherein said liquid crystal panel comprises: a upper substrate on which a common electrode and a first alignment film are sequentially disposed, figure 1 item 3a, column 5 lines 60-65; and a lower substrate on which a thin film transistor, a pixel electrode and a second alignment film are sequentially disposed, figure 1 item 3b, column 5 lines 60-65; wherein the liquid crystal is a ferroelectric liquid crystal interposed between said upper substrate and said lower substrate, figure 1 item 2, column 6 line 1.

**As in claim 3, Mizutani et al. teaches of**, wherein said backlight includes a backlight driver for supplying an electrical signal to generate red, green and blue light, figure 2 item 22.

**As in claim 4, Mizutani et al. teaches of**, further comprising a backlight controller for supplying a control signal to generate red, green and blue light, figure 2 item 23.

**As in claim 5, Mizutani et al. teaches of said ferroelectric liquid crystal responds according to said red, green and blue data signals, column 7 lines 45-67.**

**As in claim 6, Mizutani et al. teaches of a method of driving a ferroelectric liquid display, figures 1 and 2, column 5 lines 41-67, column 6 lines 1-2column 7 lines 13-19 and 44-67.**

comprising: supplying always only one color data signal to a liquid crystal cell of a liquid crystal panel, wherein liquid crystal in the liquid crystal cell responds to the color data signal during a responding period for the color data signal, **figure 7 items 1<sup>st</sup> Gate Line 8, column 7 lines 13-19 and 43-67, column 8 lines 1-45;**

and generating always only one colored light after the responding period, wherein the colored light is generated in correspondence with the color data signals, wherein the color data signal is one of a red, green, and blue color signal, **column 3 lines 30-43, column 4 lines 39-42, column 7 lines 54-67, column 8 lines 1-10.** wherein the responding period is the period between application of the data signal to the capacitor 7 and activation of the pulse to the whole writing line 9 controlling TFT 6, which turns on the pixel allowing the backlight to cause illumination. The whole writing takes place in synchronism with the backlight illumination as controlled by backlight driving unit 22. The

backlight stand-by state is light off state BL as well as the light off state between each color illumination

As shown in figure 7 and columns 7 and 8, Mizutani teaches of a scanning period from a 1<sup>st</sup> gate line 8 up until the n-th or last gate line 8, during which only a single color, R, B, or G is supplied to the display cell. The period between the application of this data signal for turning on a TFT 6 and the illumination of the red light is the response period. The irradiating period is the time when the backlight is activated in sync with the pixel turn on.

**As in claim 7, Mizutani et al. teaches of** wherein a backlight is in a stand-by state during the responding period, column 3 lines 30-43, column 4 lines 39-42, column 8 lines 64-67, wherein the stand by state is the light off state which occurs in between the R, G, B illumination and during the BL period.

**As in claim 8, Mizutani et al. teaches of** wherein said red, green and blue data signals sequentially are applied to the liquid crystal cell at least once during a frame period, figure 3A item F1 and F2.

**As in claim 9, Mizutani et al. teaches of** wherein the liquid crystal cell includes a ferroelectric liquid crystal, figure 2 item 2, column 6 line 1.

**As in claim 10, Mizutani et al. teaches of** further comprising: supplying a red data signal to said liquid crystal cell and then irradiating a red light, during a frame period, figure 13 item F11 (R); supplying a green data signal to said liquid crystal cell and then irradiating a green light, during said frame period, figure 13 item F11 (G); and supplying a blue data signal to said liquid crystal cell and then irradiating a blue light, during said frame period, figure 13 item F11 (B).

**As in claim 11, Mizutani et al. teaches of** wherein after each of the red, green and blue data signals is supplied, there is a time for the liquid crystal to respond to each respective data signal, figure 7 item LC response, wherein the TFT 6 turns on the pixel which responds with illumination.

**As in claim 12, Mizutani et al. teaches of** wherein after at least one of the red light, green light and blue light is irradiated for a predetermined time, figure 3A item R, another data signal for another color is immediately supplied, figure 3A item B.

**As in claim 13, Mizutani et al. teaches of** a liquid crystal display device, figure 2, comprising:

a liquid crystal panel, **figures 1 and 2, column 5 lines 35-65**, including: a plurality of gate signal lines, **figure 2 item 8, column 5 lines 35-65**;



a plurality of data signal lines, **figure 2 item 11, column 5 lines 35-65;**

liquid crystal cells in a matrix at crossing points of the gate and data signal lines,  
the liquid crystal cells having a liquid crystal therein, **figure 2 item 1b, column 5  
lines 35-65;**

a data driver for supplying data signals to the data signal lines, **figure 2 item 13,  
column 6 lines 3-17;**

a gate driver for supplying gate signals to the gate signal lines, **figure 2 item 12,  
column 6 lines 3-17;**

a controller for receiving a plurality of signals from an interface, **figure 2 item 23,  
column 6 lines 50-60;**

and a backlight in a stand-by state throughout the duration of responding periods  
as the liquid crystal responds to the data signals after the data signals are  
supplied to the liquid crystal cells and always generating light at the end of each  
responding period, **column 3 lines 30-43, column 4 lines 39-42, column 7  
lines 54-67, column 8 lines 1-10.** wherein the responding period is the period  
between application of the data signal to the capacitor 7 and activation of the

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pulse to the whole writing line 9 controlling TFT 6, which turns on the pixel allowing the backlight to cause illumination. The whole writing takes place in synchronism with the backlight illumination as controlled by backlight driving unit 22. The backlight stand-by state is light off state BL as well as the light off state between each color illumination.

As shown in figure 7 and columns 7 and 8, Mizutani teaches of a scanning period from a 1<sup>st</sup> gate line 8 up until the n-th or last gate line 8, during which only a single color, R, B, or G is supplied to the display cell. The period between the application of this data signal for turning on a TFT 6 and the illumination of the red light is the response period. The irradiating period is the time when the backlight is activated in sync with the pixel turn on.

**As in claim 14, Mizutani et al. teaches of** wherein the data signals include red, green and blue data signals, figure 3A item F1.

**As in claim 15, Mizutani et al. teaches of**, wherein the plurality of signals include a control signal, figure 2 item 23, column 6 lines 50-60.

**As in claim 16, Mizutani et al. teaches of** wherein the plurality of signals include a horizontal synchronization signal, column 6 lines 50-60, wherein said synchronization signal is one of horizontal and vertical as well known.

**As in claim 17, Mizutani et al. teaches of** wherein the plurality of signals include a vertical synchronization signal, column 6 lines 50-60, wherein said synchronization signal is one of horizontal and vertical as well known.

**As in claim 18, Mizutani et al. teaches of** wherein the plurality of signals include an input clock signal, column 7 lines 65-68.

**As in claim 19, Mizutani et al. teaches of** wherein the plurality of signals include a data enable signal, column 7 lines 44-68.

**As in claim 20, Mizutani et al. teaches of** wherein controller is capable of receiving a horizontal synchronization signal and a vertical synchronization signal and generating a gate start clock and a gate scanning pulse to be supplied to the gate driver, figure 2 item 23.

**As in claim 21, Mizutani et al. teaches of** wherein the controller is capable of receiving data signals and generating red, green and blue data signals and a data enable signal to be supplied to the data driver, figure 2 item 23.

***Response to Arguments***

2. Applicant's arguments filed 10/2/2006 are moot in view the new grounds of rejection over Mizutani, wherein a new interpretation of Mizutani is provided. Applicant argues a color data signal is applied to a liquid crystal cell and there is a delay in the time it takes the liquid crystal to respond to an applied electric field and reach a state so that it is ready to pass the desired amount of light. Mizutani teaches of supplying only one color data signal to line 11 in correspondence to the turn on of TFT 5 by gate line 8 for storage in the capacitor 7. Once the data signal is applied to the cell, there is a delay between storage and activation of the TFT 6 by line 9 to turn on the pixel, as well as a delay between the turn on of TFT 6 and the illumination of the pixel in sync with the backlight. As shown in figure 3, the backlight includes on off or standby state in between each color illumination as well as a standby state BL, after the R, G, B signals have been transmitted. Therefore the response between pixel turn on in sync with backlight turn on and the actually illumination is the delay in time it takes the liquid crystal to respond to an applied electric field and reach a state so that it is ready to pass the desired amount of light as claimed. The Applicant claims features both taught and inherent to Mizutani.

### ***Conclusion***

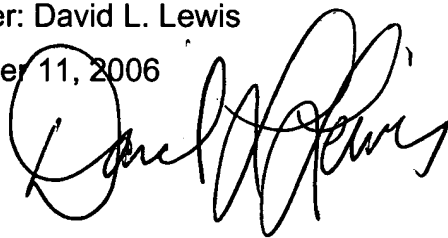
3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**. The examiner can normally be reached on MT and THF from 8

- to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.
4. Please note that all future correspondences directed to David L. Lewis must be sent to Art Unit 2629.
5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Examiner: David L. Lewis

December 11, 2006

A handwritten signature in black ink, appearing to read "David L. Lewis", is written over the date. The signature is stylized with a large initial "D" and a cursive "L. Lewis".